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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Jiang et al.

Serial No.: 09/483,712

Filed: January 14, 2000

For: CHIP-SCALE PACKAGES HAVING
ENCAPSULATED CARRIER BONDS (as
amended)

Confirmation No.: 8743

Examiner: M. Warren

Group Art Unit: 2815

Attorney Docket No.: 2269-3815.1US
(98-0670)

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REPLY BRIEF TO EXAMINER'S ANSWER

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: Board of Patent Appeals and Interferences

Sirs:

This reply brief is in response to the Examiner's Answer, issued in this case on
September 11, 2003, and is submitted pursuant to 37 C.F.R. § 1.193(b)(1).

REMARKS

Appellants provide the following remarks which are deemed necessary in view of issues raised in the Examiner's Answer:

1) GROUPING OF CLAIMS

The Examiner has indicated that "Appellant's brief includes a statement that claims 1-20 stand or fall together." (Examiner's Answer, page 3.) Appellants submit that this statement mischaracterizes Appellant's grouping of the claims.

In Appellants' brief, it is submitted that the group of claims 1, 2, 4, 5, 7 through 10, 13, and 15 through 20 stand and fall together for purposes of this appeal. It is further submitted that claims 3, 6, 11, 12, and 14, which depend from claim 2, do not stand and fall with claim 2 or with any other claims of the above group, as each are separately patentable for the reasons previously set forth in Section 8(C)(4) of Appellant's brief.

2) EXAMINER'S ARGUMENTS

The Examiner has raised a number of additional issues not previously presented during prosecution that are addressed by Appellants as set forth below.

A. Examiner's assertion that Appellants are basing patentability solely on "bond wires"

The Examiner asserts that "the novelty of applicant's invention pertains to the carrier bonds 50 and how portions of those carrier bonds extend through package encapsulant 60," and that patentability of the invention "should not be based on 'bond wires' because they are so well known in the art." (Examiner's Answer, pages 5-6.) Appellants respectfully submit that the Examiner has mischaracterized the standard for establishing a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

As previously set forth in Appellants' brief, three basic criteria must be met to establish obviousness under 35 U.S.C. § 103(a): 1) a suggestion or motivation to modify or combine the references as presented; 2) a reasonable expectation of success; and 3) the references must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Accordingly, the patentability of the present invention is not based merely on the existence of "bond wires" in the prior art as asserted by the Examiner, but depends on whether or not the references satisfy the above-described criteria required for a rejection under 35 U.S.C. § 103(a). Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *See* M.P.E.P. 2143.01.

B. Examiner's assertion that Appellants' arguments are not supported because Farnworth reference does not mention "bond-wires"

In addressing Appellants' arguments, the Examiner newly asserts the following:

The applicant's argument that bond wires, if used by Farnworth would enlarge the package size, increase process steps, and decrease electrical performance is completely speculation because Farnworth does not mention anything concerning bond wires used for connection. In fact, Farnworth cannot teach away from the use of bond wires because Farnworth's invention only pertains to improved pad forming processes.

(Examiner's Answer, page 6.) First, Farnworth, in and of itself, is not relied on for Appellants' arguments that bond wires would enlarge package size, increase process steps, and decrease electrical performance. Rather, Appellants' discussion of the negative impact of adding bond wires to the flip chip package in Farnworth is based on structural aspects of bond wires which are widely documented and well known to those of ordinary skill in the art. Second, while it is true that Farnworth does not disclose bond

wires, Farnworth does disclose specific objectives of the invention that teach away from the proposed modification in view of the processes inherently associated with forming bond wire connections. (Appellants' Brief on Appeal, page 8, Section 8(C)(2).) A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). The lack of disclosure of bond wires in Farnworth does not indicate that Farnworth cannot teach away from their use, but instead, highlights the fact that bond wires would not be obvious for incorporation into the flip chip package of Farnworth.

C. Examiner's new grounds for motivation to combine the references

The Examiner newly asserts that one of ordinary skill in the art would be motivated to combine the references as presented because "bond wires can be easily attached or removed, lengthened or shortened to reach distant lead fingers and bond pads, or crossed over one another to form a desired electrical pathway," which provides flexibility in manufacturing. (Examiner's Answer, pages 6-7.) Farnworth, however, discloses that the method of the invention allows repatterning of circuits using simplified masking steps. (See Farnworth at col. 3, lines 48-52.) As such, Farnworth already provides a flexible means to form electrical pathways to substitute or alternative bond locations in the form of repattern traces 1016. Furthermore, even if bond wires were somehow incorporated into the flip chip package of Farnworth, repattern traces 1016 would still be required in order to provide the alternative, repatterned bond locations for attachment of solder ball 1032. (See Farnworth, Fig. 2h and col. 4, lines 49-53.) Adding bond wires to Farnworth would, therefore, only complicate the manufacturing process instead of providing flexibility as suggested by the Examiner. Finally, the new reasons for the proposed combination asserted by the Examiner still fail to overcome the fact that the references teach away from the combination, there is no reasonable expectation of

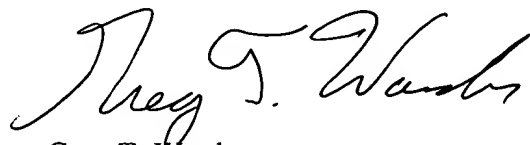
success, and that the references do not teach or suggest all of the claim limitations.

(Appellants' Brief on Appeal, page 8, Section 8(C)(2)-(4).)

CONCLUSION

Appellants respectfully request the reversal of the rejections of currently pending claims 1 through 20 for the reasons set forth above and in Appellants' Brief on Appeal.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Greg T. Warder". The signature is fluid and cursive, with the first name "Greg" being the most prominent.

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Date: November 3, 2003

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